

# Pandemic Flu Response for Two-legged Species

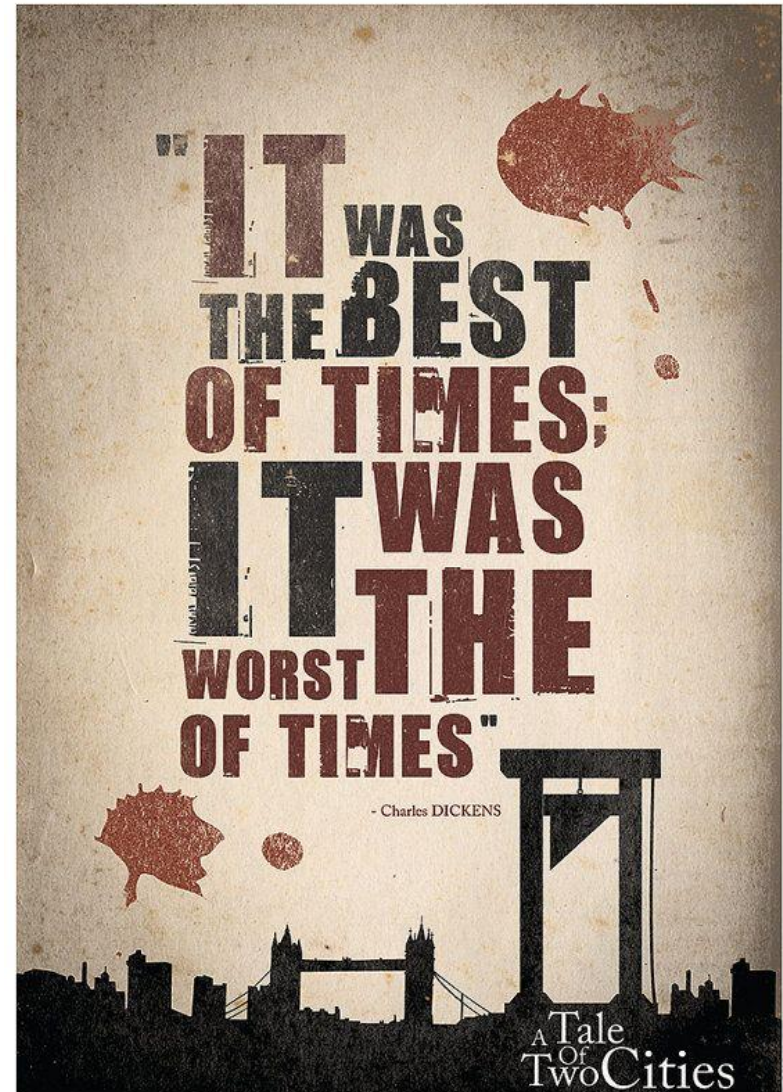
Julie Casani, MD, MPH

NC DHHS/DPH Public Health Preparedness



- ▶ Overview of considerations and challenges for human/public health disciplines for human and animal influenzas

# A Tale of ~~Two Cities~~ Diseases




# H1N1

- ▶ 2009–2010 Outbreak of Flu in humans





 FRIDAY, DECEMBER 4, 2015

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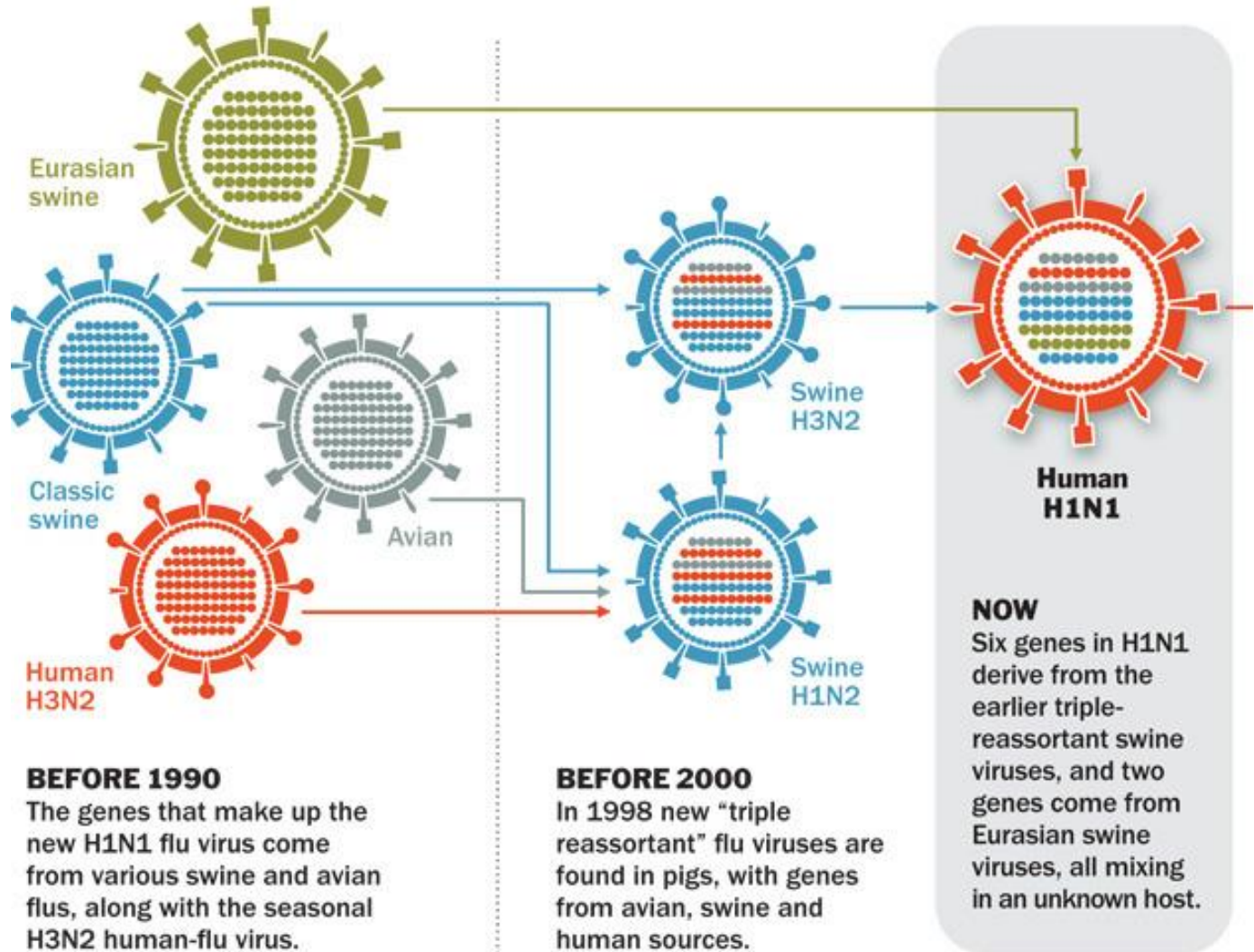
## About the Flu

### Seasonal Flu (CDC)

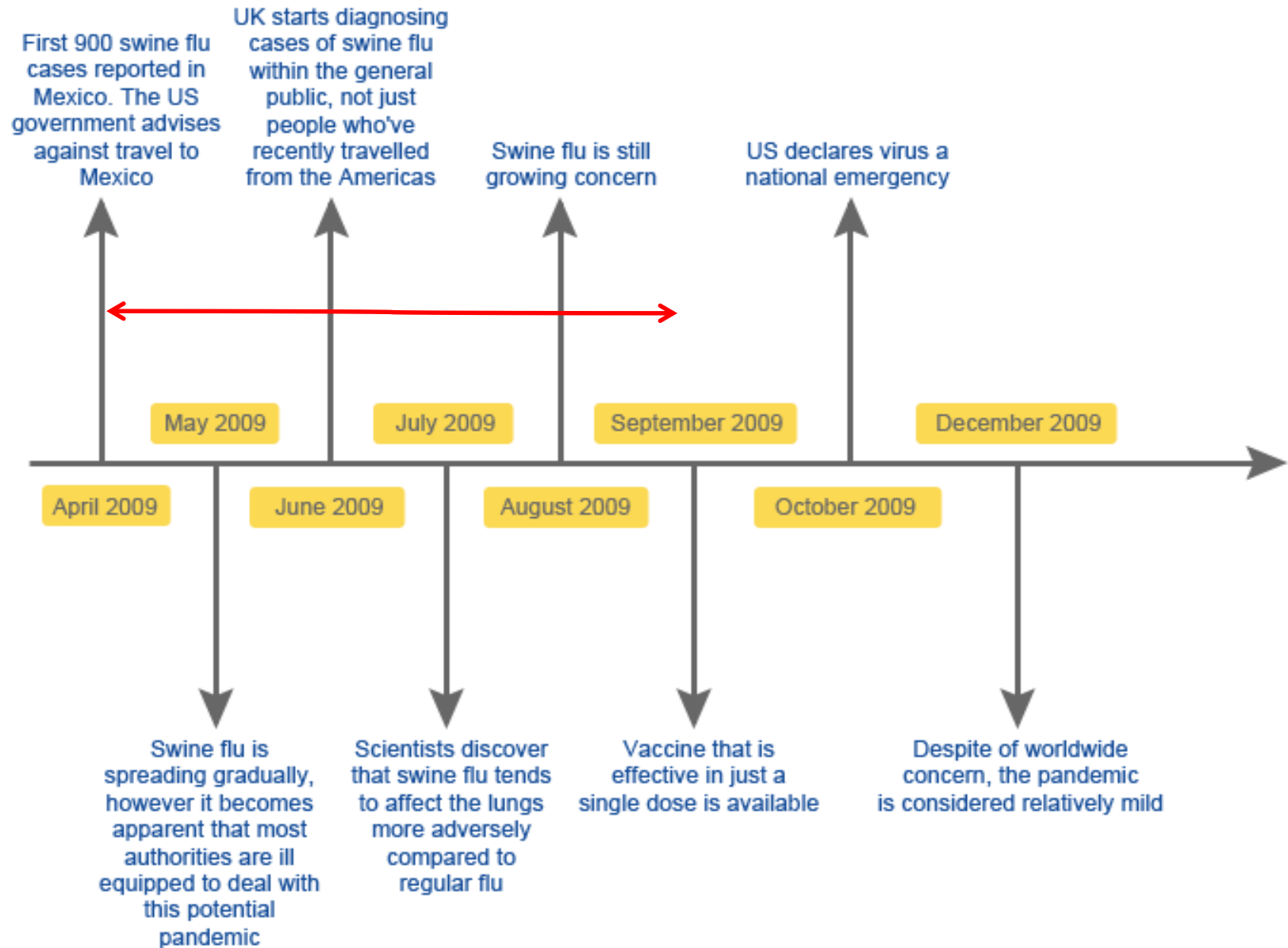
# H1N1 - originally referred to as Swine Flu

The H1N1 flu virus caused a world-wide [pandemic](#) in 2009. It is now a human seasonal flu virus that also circulates in pigs.

## How the H1N1 virus evolved ...



Adapted from TIME Graphic by Lon Tweeten and Bryan Walsh with sources from NEJM, Nature, WHO, and CDC



# PH Activities

- ▶ Human Health Surveillance
  - ▶ Outbreak characterization and investigation
    - Epidemiology capabilities
    - Laboratory capabilities
  - ▶ Containment Measures
    - Social Distancing
    - Vaccination
    - Antiviral medications
  - ▶ Risk communications
    - Public
    - Partners
  - ▶ Outreach to “at risk” populations
- 



# Communicable Diseases

EXAMPLES: Pandemic Flu,  
Other Infectious Diseases, Bioterrorism

## AT RISK POPULATIONS

Children-

Pregnant Women

Elderly

Individuals with Chronic Health Conditions/Immuno-compromised-

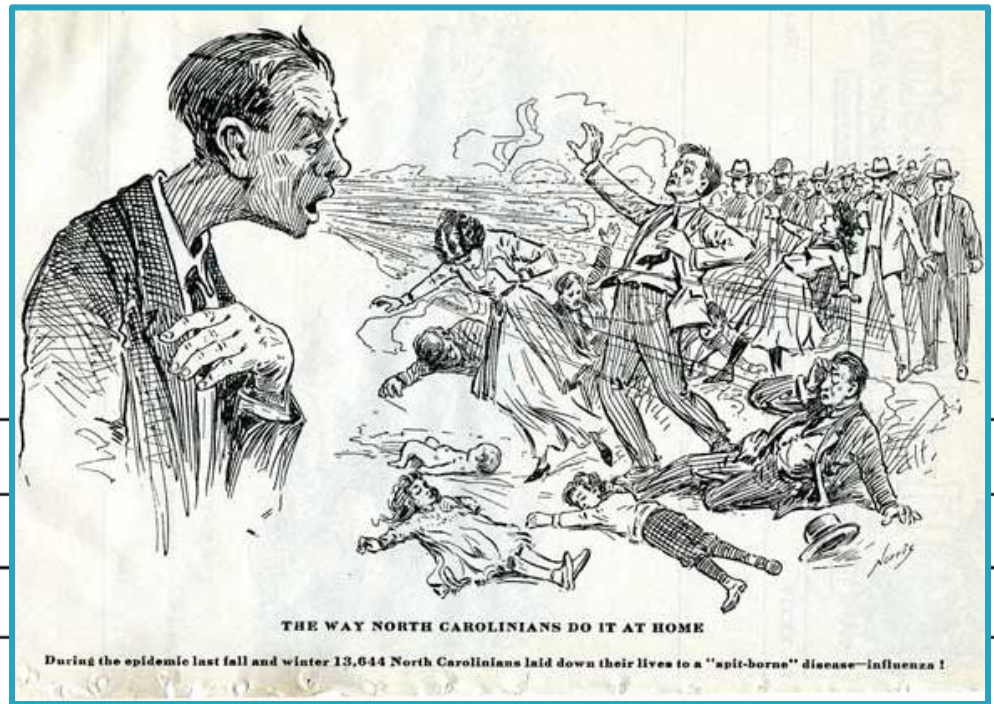
Individuals with Communication Challenges (ex: limited English proficiency, disabilities, etc.)

Unable to Access Medical Aid (\$, Access, Transportation)

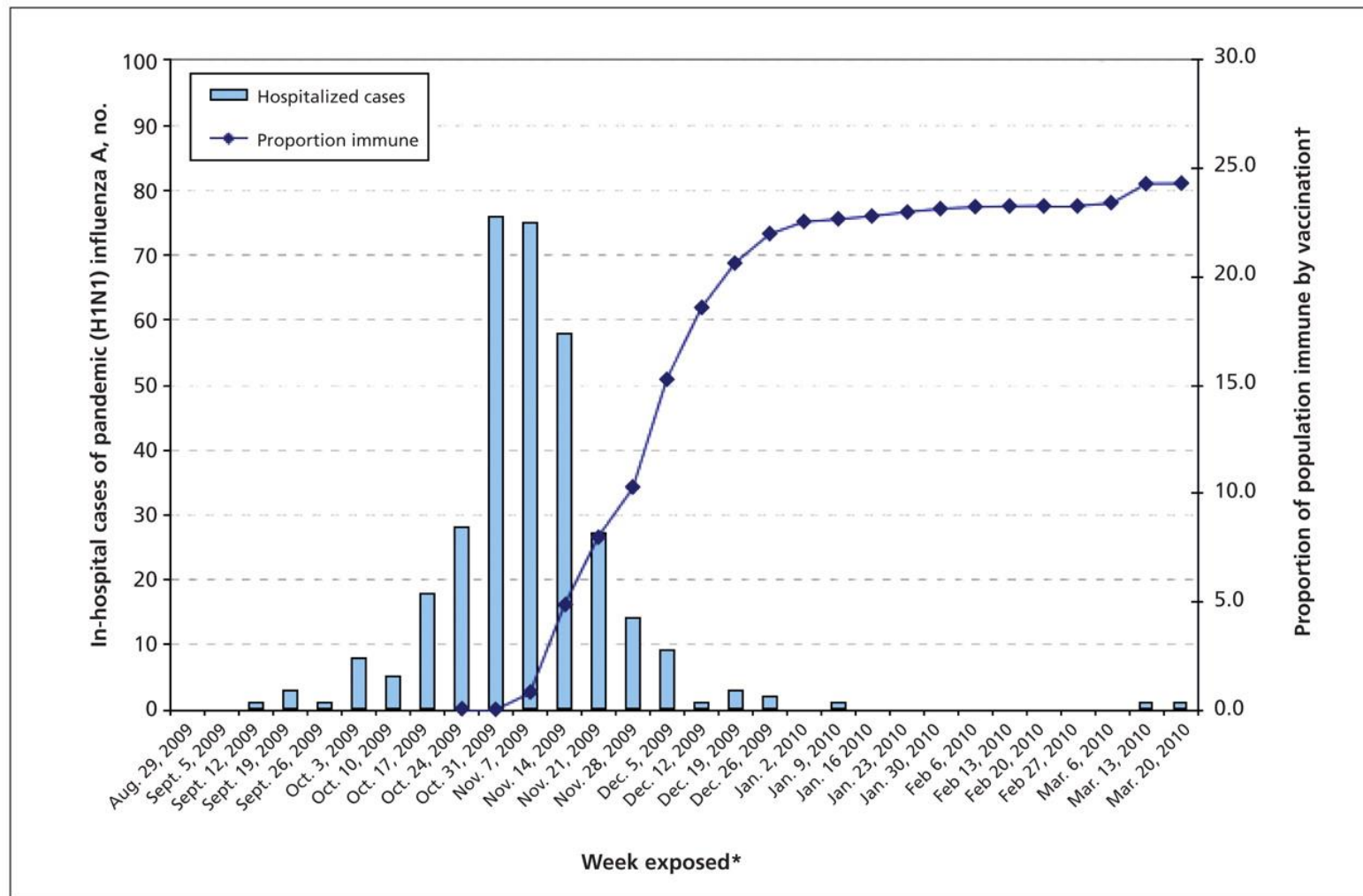
Individuals with Mental/Behavioral Health Issues-

Special Conditions (ex: high risk occupations and geographic areas)

Frontline Healthcare Providers



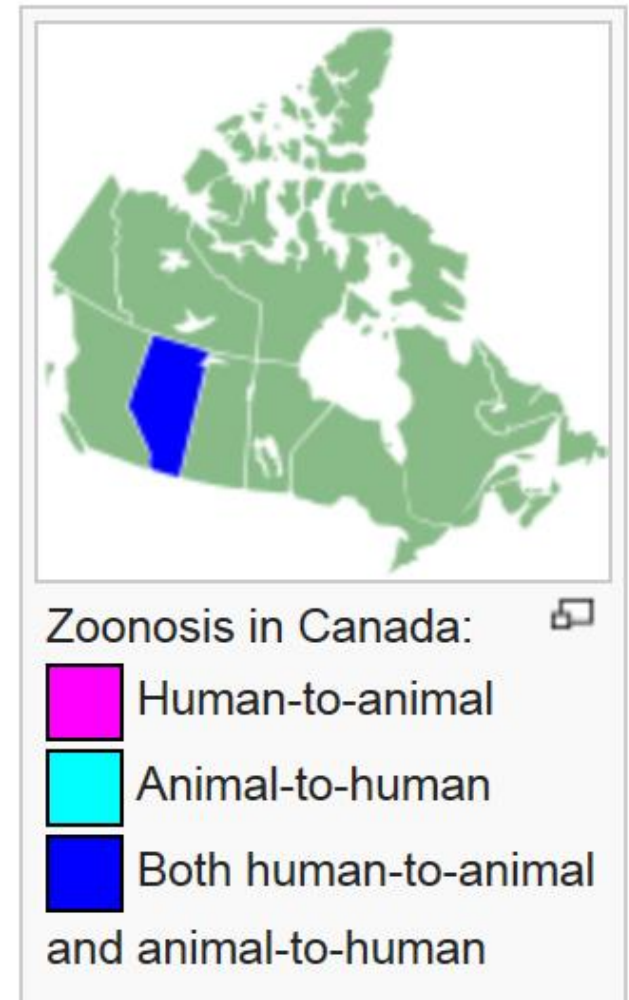
**Figure 1: Weekly reported in-hospital cases of laboratory-confirmed pandemic (H1N1) influenza by date of exposure, shown in relation to the proportion of Toronto residents estimated to be immune to the H1N1 virus because of vaccination.**



Donald E. Low, and Allison McGeer CMAJ 2010;182:1874-1878

# Impact on other animals

- ▶ Quarantining of (well) pigs
  - Afghanistan
- ▶ De-Population/Culling of swine
  - Argentina
  - Canada
  - Egypt
  - Iraq
  - Norway
- ▶ Importation bans
  - China
  - Indonesia
  - Macedonia
  - N Korea
  - Philippines
  - Russia
  - Ukraine



# HPAI

- Outbreak in birds



# HPAI

- ▶ No human illness from flu
- ▶ (Routine) Monitoring of public
- ▶ Monitoring of ALL people in affected workplaces
  - Daily Self-monitoring or Active Monitoring depending on risk assessment
    - Symptom log
    - Data base
  - Early detection/reporting of influenza-like illness
  - Low threshold for testing symptomatic workers



# Communicable Disease Branch

## 2015 Program Alert # 3

"Guidance for Highly Pathogenic Avian Influenza"

Date: June 8, 2015



To: Communicable Disease Staff in Local Health Departments

From: Victoria Mobley, MD, MPH, Medical Epidemiologist

### Background

The Centers for Disease Control and Prevention (CDC) published a health advisory on June 2, 2015 to address bird infections with Highly-Pathogenic Avian Influenza (HPAI). Although the risk of human infection with these viruses is thought to be low, people with prolonged unprotected contact with infected birds or contaminated environments may be at greater risk. The following resources are attached for your use:

1. CDC Health Advisory: Recommendations for Human Health Investigation and Response to Highly-Pathogenic Avian Influenza
2. NC HPAI Symptom Monitoring Log
3. Monitoring Instructions for Exposed Persons. Please distribute this on your letterhead to exposed persons.

More than 40 million birds have been affected in 20 states. No human infections of the H5 strain have been detected in the U.S. at this time. However, similar HPAI H5 viruses have infected people in other countries and caused mild to severe illness. Avian influenza viruses spread to people through direct contact with infected birds or their contaminated bedding, feed or water troughs.

# Mental Health Impacts

## ▶ Historical Evidence of Risk

### ◦ PTSD after Foot and Mouth

- Older and lower income more at risk
- Women more at risk than men
- No difference with farm size

• Olff et al BJP 2005

### ◦ Utilization of Mental Health services after Foot and Mouth

- High psychological stress regardless of whether or not their cattle were slaughtered
- Sought assistance from community and local veterinarians not from health care system.

• Peck et al JMH 2002

## **Box 2. Rural Decline and Mental Health**

Social connectedness, which is generally high in rural areas,<sup>29</sup> where disasters such as drought often strengthen rural identity and cohesion,<sup>30</sup> is strongly protectively linked to mental health.<sup>31</sup> However, declining economic conditions have contributed to significant income losses, increased poverty, and an exceptional demand on charitable organizations.<sup>13</sup> This has been associated with rural community attrition, through the displacement of younger generations, a reluctance to take over failing family businesses, and loss of hope for future prosperity.<sup>16,32</sup> These factors have undermined cohesion in many communities,<sup>13,30,33</sup> and just living in a declining area is detrimental to mental health.<sup>34</sup>

# Economic Impact

- ▶ Rural areas which are already economically challenged
- ▶ Limited number of employment alternatives
- ▶ Unemployment compensation/relief requirements

2015 HPAI Outbreak Event Unemployment Insurance Claims		
County	Number Unemployed as a result of the HPAI Outbreak (as reported from Iowa Workforce Development)	
	Actual as of June 16, 2015	Projected through July 15, 2015
Buena Vista	341 *	461
Sioux	7 *	7
Webster	25*	25
Wright	65 *	90
TOTAL	438	584

*\*Poultry flock euthanization efforts are continuing*

Iowa's request for Presidential Declaration of Emergency, June 2015

<https://governor.iowa.gov/2015/06/gov-branstad-requests-presidential-disaster-declaration-due-to-bird-flu-outbreak-in-iowa>

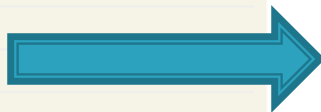


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## What You Need to Know About the Current Highly Pathogenic Avian Influenza Outbreaks

Posted by [Dr. John Clifford, USDA Chief Veterinary Officer](#), on April 22, 2015 at 3:36 PM

Today I had a press call with our USDA partner, Dr. Alicia Fry from CDC and Dr. David Swayne of USDA's Southeast Poultry Research Lab to help get out some important information about the avian influenza event currently occurring in the United States.

Since December 2014, USDA has confirmed cases of highly pathogenic avian influenza (HPAI) H5 in the Pacific, Central and Mississippi Flyways (migratory paths for birds). The disease has been found in wild birds, as well as in some backyard and commercial poultry flocks.

There are three important things that you need to know about this situation:

1. **Our food supply is safe.** Food is safe because the United States has the strongest AI surveillance system in the world. We actively look for the disease, educate the public and producers on the most appropriate practices to ensure their health and safety, as well as provide compensation to affected producers to encourage disease reporting.
2. **The risk to humans is low.** No human infections with these viruses have been detected, and the CDC considers the risk to people from these HPAI H5 infections in wild birds, backyard flocks, and commercial poultry to be low.



## Avian Influenza

### H5 Viruses in the United States

#### Updates and Publications

#### Information for Specific Groups

#### Current Situation

#### In Birds

#### In Humans

#### Outbreaks

#### Health Care and Laboratorian Guidance

#### Highly Pathogenic Asian Avian Influenza A (H5N1)

#### Avian Influenza A (H7N9) Virus

#### Prevention and Treatment

#### Influenza Type A Viruses

#### Transmission of Avian Influenza A Viruses Between Animals and People

## Avian Influenza

### H5 Viruses in the United States



Language: English

Highly pathogenic avian influenza (HPAI) H5 infections have been reported in U.S. domestic poultry (backyard and commercial flocks), captive wild birds, and wild birds by the U.S. Department of Agriculture (USDA) and the U.S. Department of Interior (DOI)\*. HPAI H5 detections began in December 2014 and continued into mid-June 2015. During that time H5 bird flu virus detections were reported in 21 U.S. states (15 states with outbreaks in domestic poultry or captive birds and 6 states with H5 detections in wild birds only). It is possible that H5 outbreaks in birds in the United States may recur in the fall and winter. Surveillance for H5 in U.S. birds is ongoing.

The Centers for Disease Control and Prevention is the lead Federal agency for the human health response. At this time, no human infections with these viruses have been detected, however similar viruses have infected people in other countries and caused serious illness and death in some cases. Human infections with avian influenza viruses have occurred after close and prolonged contact with infected birds or the excretions/secretions of infected birds (e.g., droppings, oral fluids).

While the health risk posed to the general public by domestic HPAI outbreaks is low, it is possible that human infections with these viruses could occur. CDC has guidance for clinicians and public health professionals in the United States on appropriate follow-up, preventive treatment, testing, specimen collection and processing of samples from patients who may be infected with H5 viruses.

#### Risk to Human Health

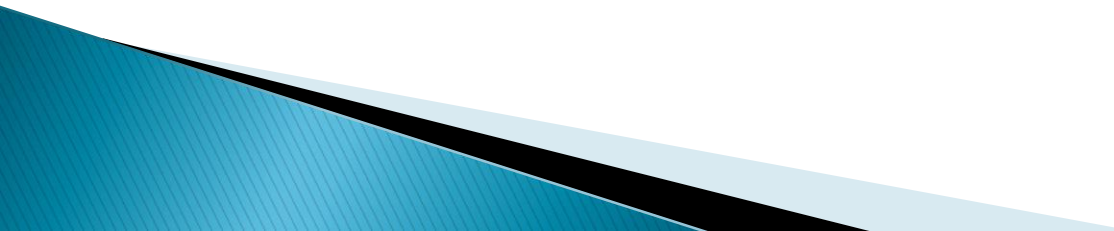
- No human infections with U.S. H5 viruses have occurred
- Similar viruses have infected humans in other countries
- People in contact with known infected or possibly infected birds should take precautions to protect against infection

#### More Information

- [USDA List of Confirmed U.S. H5 Infections in Poultry](#)
- [USDA List of Confirmed U.S. HPAI Wild Bird Cases](#)
- [USDA Biosecurity Overview](#)

#### Information for Specific Groups

# Ongoing challenges

- ▶ What's in a name?
  - ▶ Expectations of the public
  - ▶ Role of social media
  - ▶ One Medicine/One Health response framework
- 

# The End

